LOAD/STORE INSTRUCTIONS

ABSTRACT OF THE DISCLOSURE

The present invention relates generally to microprocessor or microcontroller architecture, and particularly to an architecture structured to handle unaligned memory references. A method is disclosed for loading unaligned data stored in several memory locations, including a step of loading a first part of the unaligned data into a first storage location and rotating the first part from a first position to a second position in the first memory location. Next a second part of the unaligned data is loaded into a second storage location and rotated from one position to another position. Then the first storage location is combined with the second storage location using a logical operation into a result storage location. The storage locations may be, for example, 64-bit registers. The logical operation may be a bit-wise OR operation. The method may optionally include, performing masking, zero-extending and/or sign extending operations on the first storage location, when the first part of the unaligned data is in the second position of the first storage location.